1. Introduction

I-75 is the main north-south roadway through Oakland County. It currently varies from three to four lanes in each direction (Figure 1-1). The I-75 Corridor Feasibility Study,[1] completed in November 2000, recommended the widening of the three-lane sections of I-75 in Oakland County to four lanes. It also recommended the improvement of several interchanges and arterial streets near I-75. The federal action covered by this project's Environmental Impact Statement (EIS) will address the widening of I-75 from three to four through travel lanes in each direction between 8 Mile Road (exit 59) and M-59 (exit 77), a distance of 18 miles. MDOT has plans for additional widening I-75 north of the existing four-lane section north of the M-24 area. However, the proposed improvements between 8 Mile Road and M-59 have independent utility, i.e., they can stand alone and provide transportation benefits without relying upon the development of other projects.

The proposed improvements include reconstructing the 12 Mile and 14 Mile Road interchanges as single point interchanges. Modifications to the Crooks/Long Lake interchange and the M-59 interchange are separate projects. Other independent, but related projects include a new pedestrian bridge over I-75 south of Auburn Road and noise mitigation in the Square Lake Road area that has moved to the design phase.

This EIS for the proposed improvements will be the product of the I-75 Oakland County Planning/ Environmental Study, which is listed in the Southeast Michigan Council of Government's (SEMCOG's) 2025 Regional Transportation Plan, in SEMCOG's Transportation Improvement Plan (TIP), and in the Michigan Department of Transportation's (MDOT's) Five-Year Road & Bridge Program (Volume IV – 2002 to 2006) for the Metro Region.

1.1 Purpose of Information Packet

This Scoping Information Packet identifies issues of interest that may result from improvements proposed to be made to I-75 between 8 Mile Road (exit 59) and M-59 (exit 77) in Oakland County, Michigan (Figure 1-2) and to provide preliminary assessments of specific areas. I-75 is the main north-south roadway through Oakland County. Within the project limits, it connects to M-102 (8 Mile Road), I-696, and M-59, and many other major state highways and roads. Within southeast Michigan, I-75 links with I-94, I-96, I-275, and I-375. Nationally I-75 runs from Miami, Florida to Sault Ste. Marie, Canada.

The proposed project consists of adding one lane in each direction over most of the 18-mile project length. Within the study area, I-75 is oriented in a diagonal fashion along a general northwest/ southeast axis. Access is available at 12 interchanges.

[1] *I-75 Corridor Study in Oakland County*; The Corradino Group for the Michigan Department of Transportation, the Southeast Michigan Council of Governments, the Road Commission for Oakland County and the Traffic Improvement Association; November 2000.

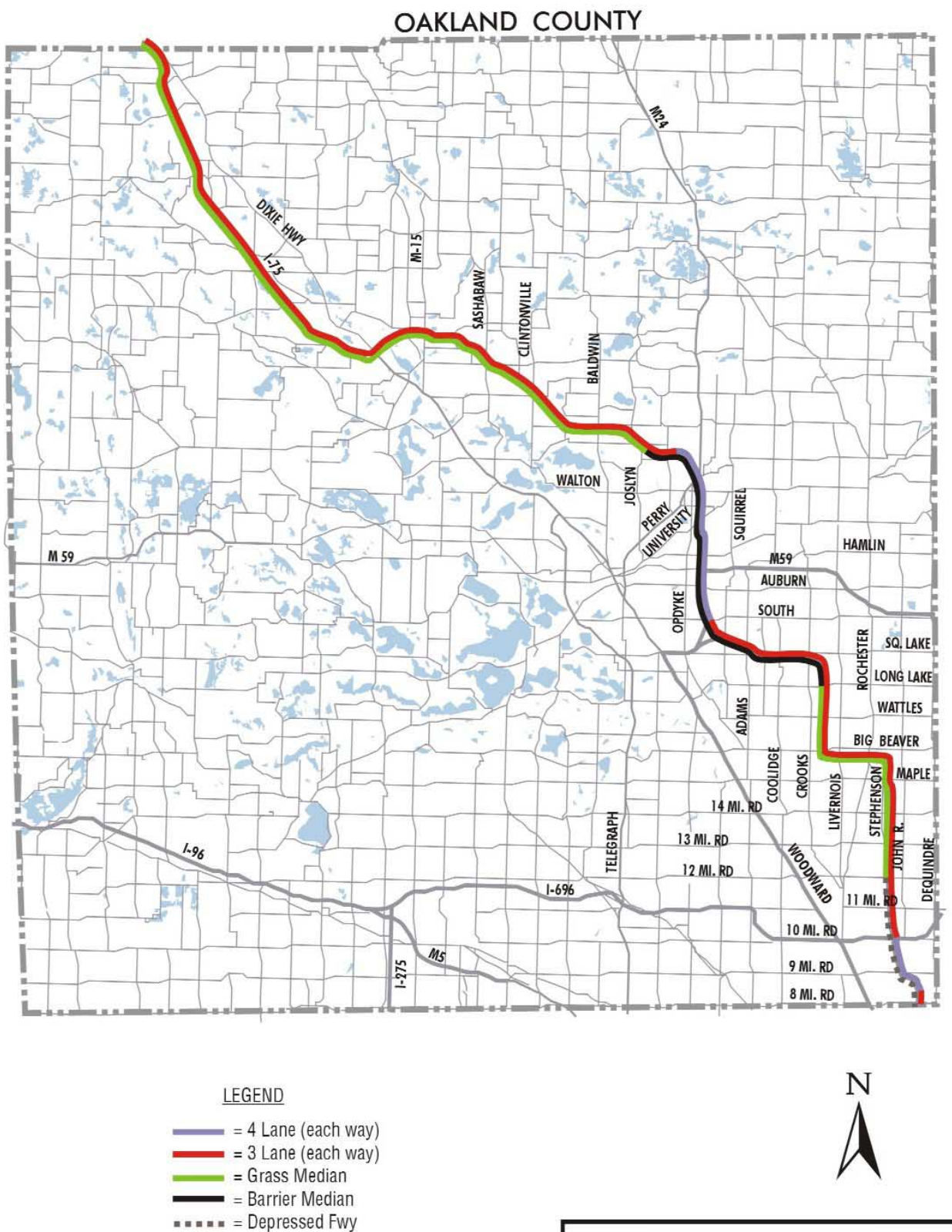

Figure 1-1
I-75 Existing Number of Lanes, Median Condition & Depressed Area

SOURCE: The Corradino Group

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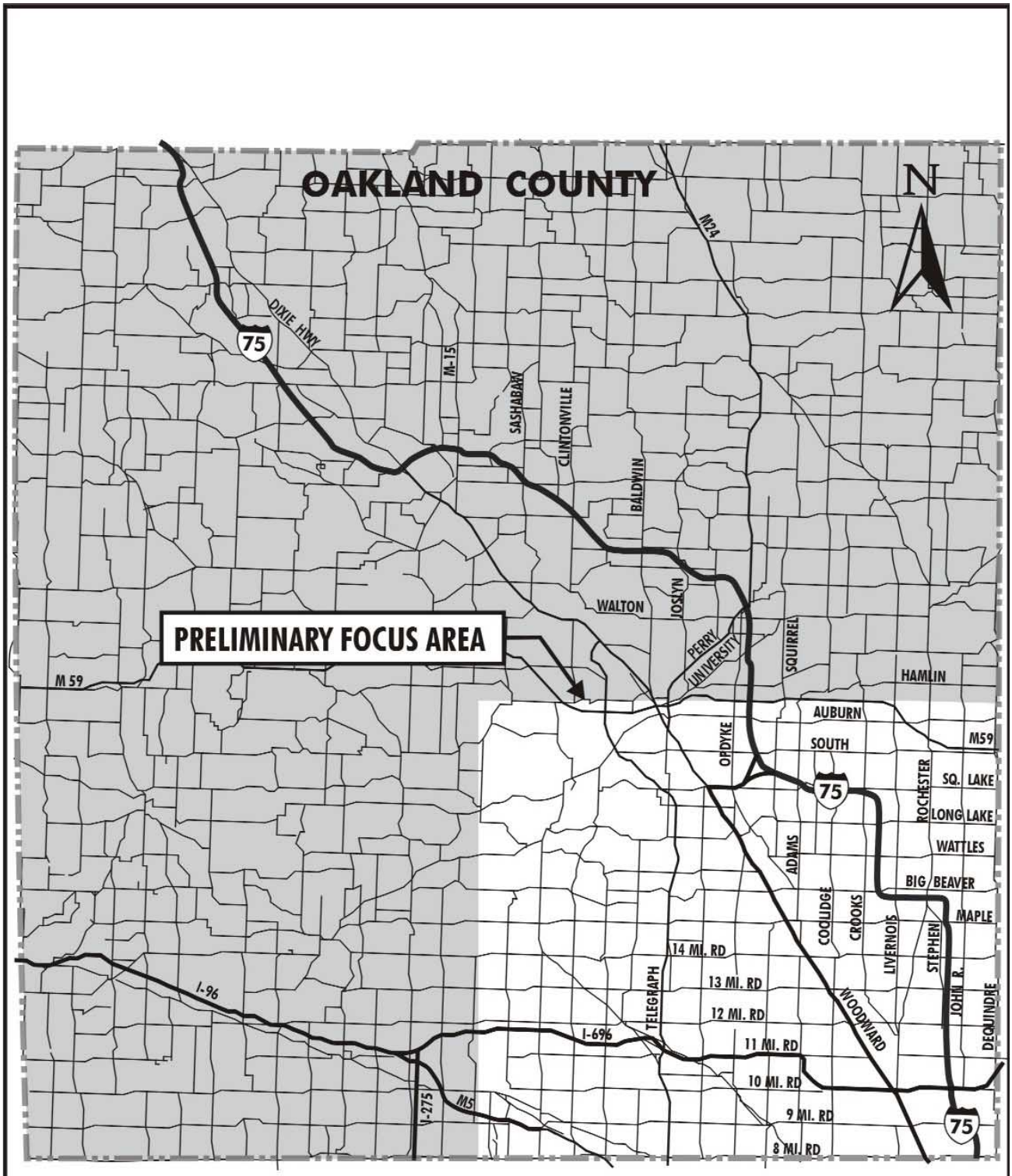

SOURCE: The Corradino Group

Figure 1-2
Preliminary Focus Area

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I-75 has high traffic volumes, especially during peak commuting hours. The high volumes exceed roadway capacity today in a number of sections and conditions will worsen in the future.

It is anticipated that the proposed action can be documented in an Environmental Impact Statement (EIS). The process of gathering project-related data for the environmental analysis began with the I-75 Corridor Study (available at www.mdot.state.mi.us/projects/I-75corridor/), which was completed in November 2000. This packet identifies the social, economic and environmental issues that are expected to be factors in evaluating highway improvements. Impact categories expected to be "potentially significant" are identified. But, it is recognized the level of significance of any impact category as presented herein may change as more data become available.

1.2 Scoping Meetings/Review Comments

Scoping is an integral part of the environmental impact analysis. It allows the early exchange of information between governmental agencies at all levels and provides a mechanism to identify potential environmental issues at an early stage in the assessment process. For this study, the scoping meeting will introduce the MDOT/Consultant Project Team; define the project schedule; and, solicit improvement concepts as well as key issues of an economic, environmental, social, and/or transportation nature. A list of agencies invited to the scoping meeting is contained in the appendix.

1.3 Studies and Evaluation of Alternatives

Technical studies will be prepared to contribute to the development of the Draft EIS. Technical memoranda will also be prepared, as appropriate, for the following impact categories:

- Transit
- Traffic
- Air Quality
- Noise
- Historic/Archaeological Resources
- Hazardous Materials
- Wetlands

1.4 Future Procedures

Development of practical alternatives and the accompanying environmental analysis will be summarized in the Draft EIS. It will be the subject of comment at a public hearing. Based on input from the public, and other communications with stakeholders and agencies, further refinements will be made to arrive at the recommended alternative. A Final EIS and a Record of Decision will be prepared after the Public Hearing. In addition, access modification studies may be required. Such studies demonstrate that proposed changes to the interstate highways are in the best interest of the public and that the changes do not compromise the functioning of an interstate as a through travel route. These studies must receive approval by the Federal Highway Administration (FHWA) that is independent of the FEIS approval.

2. Planning Basis and Need for the Proposed Action

The I-75 Oakland County Planning/Environmental Study is an Early Preliminary Engineering (EPE)/ Environmental Impact Statement (EIS) project. It is being conducted by the Michigan Department of Transportation (MDOT) for an 18-mile segment of I-75 in Oakland County, Mich. The main purpose of the study is to identify recommended roadway and interchange improvements along the existing alignment between 8 Mile Road and M-59. These improvements will, once implemented, bring this segment of I-75 up to most current MDOT engineering standards and modernize the existing roadway to accommodate future traffic growth including trucking.

Based on this background, the purpose of the project is to:

1. Improve travel efficiency and roadway capacity in the I-75 corridor by upgrading, where feasible, road segments, interchanges, and bridges to modern standards and making other transportation improvements (including the use of Intelligent Transportation Systems [ITS]) designed to accommodate projected year 2025 traffic volumes;
2. Improve the physical condition of existing bridges and road segments; and,
3. Improve motorist safety.

2.1 Population, Land Use, and Development

Two of the most important factors influencing traffic volumes are population and land use. The following subsections present population and land use trends that are relevant to existing and future traffic volumes in the project area.

2.1.1 Population

There has been extensive growth in Oakland County in both employment and population. The population increased seven percent from 1,012,000 to 1,084,000 between 1980 and 1990. Over the last decade it increased nearly 10 percent from 1,084,000 to 1,194,000. It is expected to increase by an additional 13 percent to 1,350,000 over the next 30 years. Employment has increased by 34 percent from 681,000 to 910,000 over the last decade and is expected to increase by an additional 21 percent to 1,100,000 over the next 30 years.[2] In 2020 in is expected that Oakland County will have nearly 19 percent of the state of Michigan's total employment and more than 29 percent of the total earnings in the state.[3]

[2]2030 Regional Development Forecast for Southeast Michigan, Southeast Michigan Council of Governments, SEMCOG; 2001.
[3]Woods and Poole Economics, Inc.; 1999 State Profile; Michigan.

2.1.2 Land Use

I-75 is used by Oakland County commuters and by through travelers. When I-75 was originally planned, it was laid out in a stair-step manner following section lines and property lines, to minimize impacts to the development that existed at the time. Since the early 1960s when the road was built, I-75 has influenced the course of development. Urban land uses extended north to about 12 Mile Road at that time. North of this area, development began to focus around interchanges. Thus, mobility became focused on I-75 from the time of its construction and since. Land use in the south part of the corridor has always been primarily residential and commercial. This pattern continued northward after I-75 was constructed, but in a less dense manner, without the support of an urban grid of streets. There are several large traffic generators in the study area. These currently include the Pontiac Silverdome, many large office buildings, including the headquarters of Kmart and Kelly Services, the Oakland Mall, and Somerset Mall.

2.2 Existing Traffic Volumes

Level of Service (LOS) is a standard measurement that reflects the degree of congestion and amount of delay experienced by motorists. LOS is expressed by a letter between A and F. LOS A represents a situation where motorists experience minimal congestion, minimal delays, and experience free flow travel conditions. LOS F represents a situation where motorists experience extreme congestion, long delays, and severely impeded traffic flows.

I-75 in the project area operates from LOS C (light congestion) to LOS F (extremely congested) along the mainline during today's peak periods. Table 2-1 and Figure 2-1 illustrate the afternoon (PM) peak traffic volumes and LOS for each segment of the study area. Figure 2-1 shows the existing LOS.

Table 2-1
Existing (2002) PM Peak Hour Traffic Volumes and LOS for I-75

Segment	Volume		NB LOS*	SB LOS*
	Northbound	Southbound		
8 Mile Road to 9 Mile Road	6,290	4,780	D	C
9 Mile Road to I-696	6,220	5,270	D	C
I-696 to 11 Mile Road	6,300	6,080	D	D
11 Mile Road to 12 Mile Road	5,900	5,050	F	F
12 Mile Road to 14 Mile Road	5,830	4,420	E	D
14 Mile Road to Rochester Road	4,840	4,680	D	D
Rochester Road to Big Beaver Road	4,120	4,400	D	D
Big Beaver Road to Crooks Road	3,850	4,000	C	C
Crooks Road to Adams Road	3,750	3,640	C	C
Adams Road to Square Lake Road	4,100	3,710	F	F
Square Lake Road (I-75 BL) to M-59	5,950	4,750	D	C
North of M-59	6,150	5,165	D	C

Source: The Corradino Group of Michigan, Inc.

*Due to weaving activity and incidents, LOS is most often at E or F.

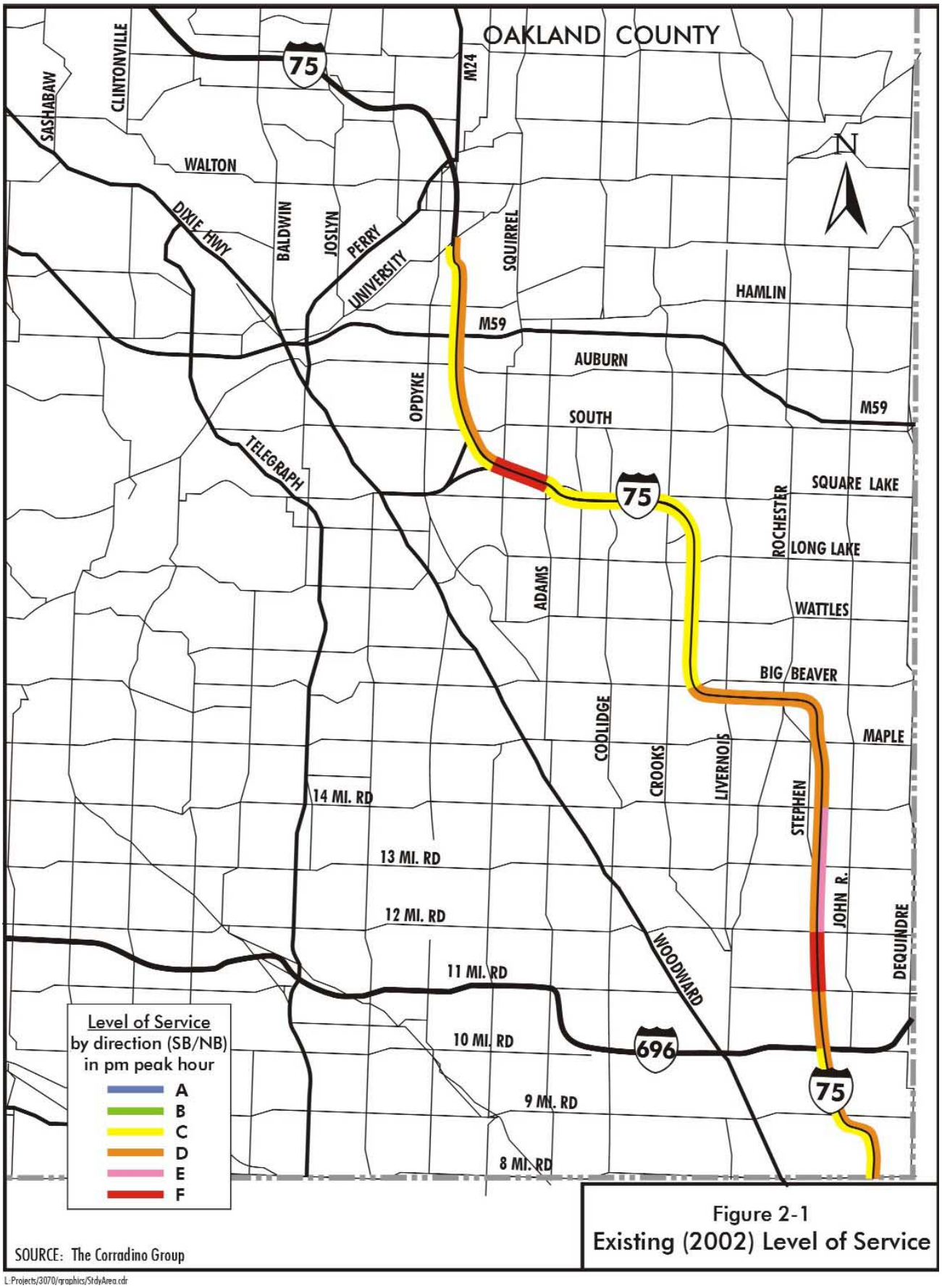

Figure 2-1
Existing (2002) Level of Service

Analysis of today's LOS of each of the freeway segments by direction used the latest software from the Transportation Research Board Highway Capacity Manual (HCM) 2000 Chapter 23 and today's traffic. It measured the LOS at F (extremely congested) for four segments, E (severe congestion) for one segment, and D (significant congestion) for 11 segments. It should be noted that the segments of I-75 in the study area shown as operating at LOS C or D are normally worse in reality. The HCM software does not account for turbulence in the corridor created by merging traffic and backups from more congested segments. There are approximately 1,300 crashes a year on I-75 in the study area, i.e., 3.5 crashes per day. Delays and lane blockages due to crashes, in addition to lane blockages that can occur by automobile breakdowns, further worsen roadway operations along I-75. Overall, high demand causes I-75 to operate at severe congestion, if not breakdown conditions (LOS E or F) in the three-lane sections during the peak traffic periods. The result is overall lower speeds, queuing, and lower observed volumes.

Another item of note is that today's I-75 volumes are relatively balanced for northbound and southbound directions of travel. This means the full capacity of the road is being used.

2.3 Future Traffic Projections

In order to assess the need for the project, SEMCOG's model was used in 2002 to study the "No Build" scenario for the year 2025. The "No Build" scenario is the future situation that assumes projected population growth and other committed/cost feasible road improvements will occur, but that no improvements will be made to I-75 within the project area other than normal maintenance. The year 2025 was selected for this study because projects constructed with federal funds must address the traffic needs projected for 20 years from now.[6] These projections demonstrate that the existing roadway, without improvement, will experience severe congestion throughout its length (Table 2-2 and Figure 2-2) in 2025.

Table 2-2
2025 PM Peak Hour Traffic Volumes and LOS for I-75 - No Build

Segment	Volume		NB LOS*	SB LOS*
	Northbound	Southbound		
8 Mile Road to 9 Mile Road	7,773	7,340	E	E
9 Mile Road to I-696	7,827	7,765	E	E
I-696 to 11 Mile Road	7,590	7,655	E	E
11 Mile Road to 12 Mile Road	6,430	6,562	F	F
12 Mile Road to 14 Mile Road	6,250	6,090	F	E
14 Mile Road to Rochester Road	5,812	5,724	E	E
Rochester Road to Big Beaver Road	4,820	4,908	D	D
Big Beaver Road to Crooks Road	5,654	5,086	E	D
Crooks Road to Adams Road	5,346	5,127	D	D
Adams Road to Square Lake Road	5,586	5,560	F	F
Square Lake Road (I-75 BL) to M-59	7,803	7,014	E	D
North of M-59	7,460	6,575	E	D

Source: The Corradino Group of Michigan, Inc.

*Considering weaving and incidents LOS F would prevail over these segments.

[4]SEMCOG is updating the region's transportation plan for 2030. That work is not to be completed until sometime in 2003, at the earliest.

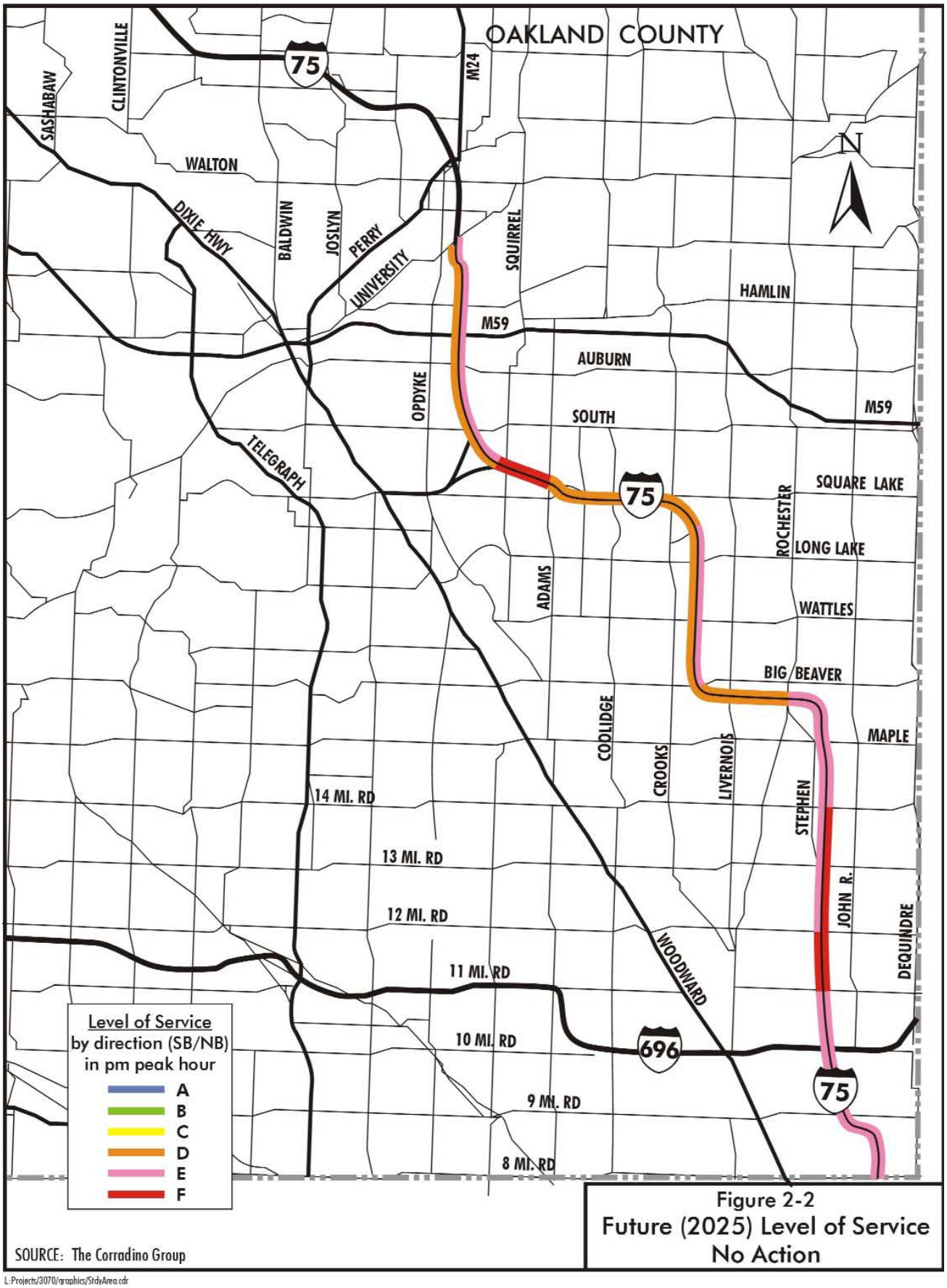

Figure 2-2
Future (2025) Level of Service
No Action

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2.4 Condition of Existing Roadway and Bridges

The condition of the existing roadway and bridges contributes to the need for the project. This section describes these needs.

2.4.1 Roadway Deficiencies

Although built to meet the design standards in the current (i.e., 1960s), the existing roadway does not meet today's standards. Table 2-3 identifies locations where I-75 does not meet modern standards based on a review of specific features including:

- Horizontal alignment
- Vertical clearance and alignment
- Stopping sight distance
- Cross section
- Ramp exit and entrance design
- Ramp spacing

In most instances the proposed improvements will upgrade I-75 to meet modern standards. However, it is understood that straightening curves at several points in the corridor is not reasonable (see next section).

2.4.2 Horizontal Alignment

The horizontal alignment of a road encompasses the radii of curves (i.e., how "sharp" a curve is), their length, and superelevation (i.e., the vertical distance between the heights of the inner and outer edges of the road or how the freeway is "banked"). There are 19 locations in the study area where I-75 does not meet modern standards for superelevation rates, superelevation transition lengths, length of curves, and radius of curvature (Table 2-3). These inadequacies reduce travel efficiency and contribute to traffic congestion. Curves in the south corridor at 9 Mile Road, Gardenia, 12 Mile Road, and Livernois/Big Beaver are in heavily built-up areas. Flattening the curves to meet a 70 mph design speed would result in significant relocations. At Big Beaver, flattening the curve would require reconstruction of the interchange.

2.4.3 Vertical Clearance and Alignment

Vertical clearance is defined as the distance between the surface of the roadway and the bottom of a bridge structure. Poor (substandard) bridge clearances occasionally result in trucks crashing into bridge beams and require some larger trucks to take alternate routes. Modern standards require a vertical clearance for bridges over I-75 of 16'3". The proposed I-75 reconstruction will meet this standard north of I-696. South of I-696, clearance could be 14'9" as the interstate system in the core of Detroit is gauged to that earlier standard.

The vertical alignment includes vertical grade (i.e., how steep hills are), the length of vertical curves (i.e., hills and dips), and vertical sight distance. These issues affect travel efficiency, traffic congestion, and safety.

Table 2-3
I-75 Roadway Features that Do Not Meet Modern Standards

Issue	Locations Not Meeting Modern Standards	Deficient Features	Comments*
Horizontal Alignment	I-75, south of John R. bridge (between Meyer & Highland)	Superelevation rate	Existing superelevation @ 5% is insufficient for 70 mph design speed (req'd 7%).
	I-75, south of John R. bridge (between Highland & Rhodes)	Superelevation transition length	Existing transition length between superelevated sections not to standard.
	I-75, north of John R. bridge (between Rhodes & 9 Mile Rd.)	Superelevation rate Length of curve Radius of curvature	Existing superelevation @ 5% is insufficient for 70 mph design speed (req'd 7%); radius of curve and length of curve not to standard.
	I-75, north of 11 Mile Rd. bridge (between Mace and E. University)	Superelevation rate Length of curve	Existing superelevation @ 5% is insufficient for 70 mph design speed (req'd 7%); length of curve not to standard.
	I-75 northbound roadway, north of Stephenson Hwy. bridge (between 11 Mile Rd. and Gardenia)	Superelevation rate Length of curve Radius of curvature	Existing superelevation @ 6% is insufficient for 70 mph design speed (req'd 7%); radius of curve and length of curve not to standard.
	I-75 southbound roadway, north of Stephenson Hwy. bridge (between 11 Mile Rd. and Gardenia)	Superelevation rate Length of curve	Existing superelevation @ 6% is insufficient for 70 mph design speed (req'd 7%); length of curve not to standard.
	I-75, bridge over 12 Mile Rd.	Superelevation rate Length of curve Radius of curvature	Existing superelevation @ 5.7% is insufficient for 70 mph design speed (req'd 7%); radius of curve and length of curve not to standard.
	I-75, north of 15 Mile Rd. thru Rochester Rd.	Superelevation rate	Existing superelevation @ 5% is insufficient for 70 mph design speed (req'd 6.3%).
	I-75, Livernois Rd. thru north of Big Beaver Rd.	Superelevation rate Radius of curvature	Existing superelevation @ 5% is insufficient for 70 mph design speed (req'd 6.3%); radius of curve is not to standard.
	I-75, north of Big Beaver Rd. thru Squirrel Rd.	Superelevation rate	Existing superelevation @ 5% is insufficient for 70 mph design speed (req'd 6.3%).
	I-75, under Squirrel Rd.	Superelevation rate	Existing superelevation @ 2% is insufficient for 70 mph design speed (req'd 7%).
	I-75, bridge over Clinton River	Superelevation rate	Existing superelevation @ 5% is insufficient for 70 mph design speed (req'd 6.1%).
	I-75, Squirrel Rd. thru South Blvd.	Superelevation rate	Existing superelevation @ 5% is insufficient for 70 mph design speed (req'd 6.3%).

*Most deficiencies in this table will be rectified, but several curves will not be improved to meet that required for a 70 mph design speed due to cost and impacts.

Table 2-3 (continued)
I-75 Roadway Features that Do Not Meet Modern Standards

Issue	Locations Not Meeting Modern Standards	Deficient Features	Comments
Vertical Clearance and Alignment	All locations along I-75 from 8 Mile Road to M-59	None.	All locations meet minimum and maximum criteria for longitudinal grades (min 0.3%, max 3.0%)
	I-75, under John R. Rd. bridge I-75, under 9 Mile Rd. bridge	Length of vertical curve (sag) at these two locations.	Two consecutive sag vertical curves, existing length of either curve are less than standard for 70 mph design speed.
	I-75, north of Meyer Rd. I-75, north of John R. Rd. bridge I-75, north of 9 Mile Rd. on-ramps I-75, at 4th Rd.	Length of vertical curve (crest) at these four locations.	Crest vertical curve, existing length of curve are less than standard for 70 mph design speed.
Stopping Site Distance	I-75, north of 8 Mile Rd., south of Meyer Rd. I-75, under Meyer Rd. bridge I-75, north of Meyer Rd. bridge I-75, under John R. Rd. bridge I-75, north of John R. Rd. bridge I-75, under 9 Mile Rd. bridge I-75, north of 9 Mile Rd. bridge I-75, south of Woodward Hts. bridge I-75, at Woodward Hts. bridge I-75, at Middlesex Rd. I-75, under 11 Mile Rd. bridge I-75, under Squirrel Rd. bridge	Stopping sight distances are not met at these 12 locations.	Stopping sight distance for crest curve is less than standard for 70 mph design speed.
	I-75, at merger of 9 Mile Rd. on-ramps I-75, at 4th road (11 Mile Rd. ramp mergers)	Stopping sight distances and decision sight distances are not met at these two locations.	Stopping sight distance for crest curve is less than standard for 70 mph design speed. Decision sight distance for merging ramp traffic below standard.
Cross Section	Eight Mile to Twelve Mile	None.	Existing pavement width and shoulder width meet modern standards.

Table 2-3 (continued)
I-75 Roadway Features That Do Not Meet Modern Standards

Issues	Locations Not Meeting Modern Standards	Deficient Features	Comments
Ramp Exit and Entrance Design	West side of I-75, north of Eight Mile Road West side of I-75, south of John R. Road West side of I-75 , north of Nine Mile Road East side of I-75, north of Nine Mile Road West side of I-75, south of Eleven Mile Road East side of I-75, south of Eleven Mile Road West side of I-75, north of Eleven Mile Road East side of I-75, north of Eleven Mile Road 12 Mile Rd. 14 Mile Rd. Rochester Rd. Adams Rd	Ramp exits and entrances do not meet modern standards at these 12 locations.	Profile grades, vertical curves, decision sight distances, and transition lengths do not meet modern standards
Ramp Spacing	Eight Mile to Twelve Mile	None	Ramp spacing meets modern standards.

Source: The Corradino Group of Michigan, Inc., OHM, and Rowe, Inc. based on MDOT Design Plans (1960s).

All locations on I-75 in the study area meet the modern standards for vertical grade and vertical sight distance. However, there are six locations where the crests and sags (hills and dips) on I-75 do not meet the modern standards for the length of vertical curves (Table 2-3).

2.4.4 Stopping Sight Distance

Stopping sight distance is the distance a motorist must be able to see in order to safely stop should an object or other threat require that. As speeds increase, stopping sight distance requirements also increase. Obstructed views (i.e., inadequate stopping sight distance) can contribute to crashes when motorists do not have sufficient time and distance to reduce speeds. There are 14 areas where stopping sight distances to not meet modern standards. Two of these also do not meet the standard for decision site distance for merging ramp traffic (Table 2-3).

2.4.5 Cross Section

The cross section of a road includes travel lane width, shoulder width (both inside and outside shoulders), median width, the cross slope of the travel lanes, shoulder slope, cut/fill slopes, and the ditch slopes (Table 2-3). In the project area, the I-75 cross section generally meets modern standards.

2.4.6 Ramp Exit and Entrance Design

At 12 locations, the ramp entrance and exit designs do not meet modern standards. Here, the decision sight distance (the distance that motorists have to make decisions about lane changes) and/or ramp taper lengths for acceleration and deceleration are inadequate (Table 2-3). In these situations, vehicles traveling on I-75 need to slow down and/or change lanes to allow other motorists to enter or exit the freeway. These problems cause inefficient freeway operations and may contribute to crashes.

2.4.7 Ramp Spacing

In urban settings, such as the project area, interchanges are typically spaced at least one mile from each other. This spacing is required to provide adequate distance for motorists to safely and efficiently perform merges and exits at interchanges. Inadequate interchange separation can create "weaving" conflicts between motorists entering and exiting the freeway. These conflicts result in traffic congestion and may contribute to crashes, in some situations. I-75 interchange ramp spacing meets modern standards in the project area (Table 2-3).

2.5 Physical Condition of Bridges

See Table 2-4 for the physical conditions of existing bridges.

Table 2-4
Bridge Conditions
(Table is Forthcoming)

2.6 Safety

From January 1995 to the end of 1997, there were 3,989 crashes from 8 Mile Road to M-59 on I-75 for an average of 1,330 crashes per year (Table 2-5). There were nine fatal crashes, or three per year. The rear-end crash was the most common type in every segment of the road. Overall, rear-end crashes accounted for 57 percent of the incidents in the study area and for up to 73 percent of the crashes in some segments. Single-vehicle crashes were the second most typical type at 18 percent of total crashes; and, sideswipe/same-direction crashes were the third most typical type of crashes at 13 percent of the incidents in the study area.

Table 2-5
Average Annual Crashes by Segment for I-75

Segment	Average Number of Annual Crashes	Main Crash Type	Length Miles	AADT	Crash Rate*
8 Mile to 9 Mile	113	35% Rear End	1.0	169,000	184
9 Mile to I-696	127	63% Rear End	1.0	178,000	195
I-696 to 11 Mile	130	73% Rear End	1.0	181,000	197
11 Mile to 12 Mile	118	67% Rear End	1.0	170,000	191
12 Mile to 14 Mile	165	58% Rear End	2.0	161,000	140
14 Mile to Rochester Road	198	60% Rear End	2.3	134,000	176
Rochester Road to Big Beaver	112	61% Rear End	1.7	110,000	164
Big Beaver to Crooks	131	49% Rear End	2.6	117,000	118
Crooks to Adams	45	45% Rear End	2.7	110,000	42
Adams to Square Lake	58	64% Rear End	1.3	113,000	109
Square Lake to M-59	132	49% Rear End	2.0	143,000	127
Totals	1,330	57% Rear End	18.6	137,059	143

*Crashes per 100 million vehicle miles
Source: The Corradino Group of Michigan, Inc. and Traffic Improvement Association of Oakland County.

The overall crash rate for the study area was 143 crashes per 100 million vehicle miles traveled. This is less than the state average for urban freeways of 177 crashes per 100 million vehicle miles.[5] However, the first four segments of I-75, covering the section from 8 Mile Road to 12 Mile Road, have a higher crash rate than the state average.

[5] Source: *Comparison of Crash Rates and Characteristics in Eight States by Roadway Class;* Transportation Research Board, Paper Number 97, 1997.

3. Alternatives Under Consideration

The I-75 Corridor Feasibility Study in Oakland County sponsored by MDOT, the Southeast Michigan Council of Governments (SEMCOG), the Road Commission for Oakland County (RCOC) and the Traffic Improvement Association of Oakland County (TIA) was completed in 2000. That study analyzed existing and future traffic needs within the entire I-75 corridor within Oakland County; sought input from local municipal officials and citizens; developed illustrative then practical alternatives for roadway improvements; and, made recommendations.

The study concluded that widening I-75 by adding one lane in each direction, where needed to provide four through lanes in each direction, was the single most productive element in addressing congestion with the fewest impacts. To further improve the performance of I-75, the study recommended reconfiguring seven interchanges, improving arterials, and expanding Intelligent Transportation Systems (ITS). (Note that interchange improvements were made in 2001 at Rochester Road and are under way as separate projects at Crooks/Long Lake Roads and at M-59.)

The alternatives under consideration in this next phase, the environmental phase, include: (1) no build; (2) mass transit; (3) transportation system management[6] and/or transportation demand management techniques;[7] (4) proposed lanes for use during all or parts of the day by high occupancy vehicles (carpools, vanpool, and buses) only; and, (5) general purpose, unrestricted freeway travel lanes (one more lane in areas where there are currently three through lanes in each direction).

3.1 The No Build Alternative

This alternative would include normal maintenance of the existing roadway laneage only, although it should be noted that even without the proposed improvements, a major reconstruction of the road is required. The anticipated increase in traffic volume will result in a continued worsening of the level of service and delays, and congestion will occur over longer periods of the day.

3.2 Mass Transit

The generic transit concept evaluated is a high performance system running on Woodward Avenue from downtown Detroit (Jefferson Avenue) to Pontiac. It includes 28 stations/stops and be characterized by:

[6]Transportation System Management (TSM) techniques focus on improving the efficiency of the transportation system through improved signalization, turn lane additions and the like, rather than more capital-intensive solutions that require more right-of-way and result in more impacts.

[7]Transportation Demand Management (TCM) techniques are designed to reduce demand where such demand exceeds available capacity, causing congestion. Mandatory carpooling for larger businesses and shifting travel to non-peak periods are examples of such measures.

- High speed (60 mph where distances and conditions permit);
- High quality vehicles with a quiet, smooth ride;
- Separation from other traffic to avoid congestion;
- Short headways of 3 minutes during peak periods;
- Short dwell times of 15 seconds or less, based on pre-paid fares at platforms to reduce boarding times;
- Timed transfers with intersecting bus routes;
- Communication between buses to avoid missed transfers;
- Park-and-ride lots at stops north of, and including, the State Fairgrounds (at 8 Mile Road); and,
- Fare integration with intersecting transit service to permit a single fare for all segments of a trip.

Results of analysis indicate that rapid transit is viable in the Woodward Corridor south of 9 Mile Road.[8] However, it does not eliminate the need to add a lane to I-75 because it does not relieve congestion; riders on rapid transit who may be diverted to I-75 are quickly replaced on I-75; Oakland County residential development is too dispersed to support a high level of transit service; and, many I-75 trips are intra-Oakland County and not easily diverted to transit.

3.3 Transportation System Management and/or Transportation Demand Management

Analysis will be conducted on applicable Transportation System Management (TSM) and/or Transportation Demand Management (TDM) techniques. TSM and TDM techniques are constantly being reviewed in the Southeast Michigan region and include a strong ITS component. Oakland County, for example, is a nationwide leader in use of FAST-TRAC, a sophisticated, computerized network of traffic signals that senses traffic flow and adjusts signal timing on a dynamic basis to maximize green time to approaching vehicles. The Road Commission for Oakland County (RCOC) has also just announced a program to retime 1,200 traffic signals in the County to improve travel efficiency. TSM and ITS will be components of any recommended alternative. TDM strategies will be examined, particularly in light of the potential application of HOV lanes. However, it is recognized these techniques have proven difficult to implement in the past because they are under the control of institutions/organizations beyond the state and federal governments.

3.4 High-Occupancy Vehicle (HOV) Lane

At a minimum, the HOV alternative consists of limiting the use of the proposed new lanes to vehicles carrying 2 or more people. For all or part of the day, only carpools, vanpools and buses could use the lane. Effective use of the lanes requires that enforcement be strict, thus there is an ongoing operating cost associated with HOV lanes.

Based on the experience with HOV in other locations nationwide, a standard, 12-foot highway lane can be striped for HOV use. In the case of I-75, as is true in virtually every case nationwide, the designated lane would be on the inside concurrent with the flow of other I-75 traffic. It would be marked by signing and pavement markings.

[8] *I-75 Oakland County Planning Environmental Study Analysis of Transit and HOV Concepts* by The Corradino Group of Michigan, Inc. for the Michigan Department of Transportation, August 2002.

Several criteria for lane designation can be examined to test the viability of HOV implementation. The first is whether the HOV lane in operation carries more persons than the adjacent, general purpose lanes. Preliminary tests of the effectiveness of an HOV lane from 8 mile Road to the north Oakland County line indicate this criterion would be met from 8 Mile Road north to M-15.

Another test is whether I-75 would carry more people overall, with the HOV lane. This test is also met, but only between I-696 and M-59.

A final test is whether an HOV could achieve a one-minute-per-mile travel time savings, compared to the adjacent general purpose lane. Analyses show this cannot be achieved. Moreover, it could only be achieved if the travel speed in the HOV lane were much higher than the adjacent conventional lane. Such speed differentials would pose serious safety issues as high occupancy vehicles worked their way into and out of the traffic flow to enter or exit the lane.

The estimated benefits to travelers due to a reduction in travel time for those using the HOV lane over a 20-year design analysis period would be modest (net present value in 2002 dollars of $7 to $8 million).

These results indicate that further analysis and discussion are necessary to determine whether the HOV will be carried forward in the EIS document. One key issue is the right-of-way need associated with development of HOV, particularly in association with special ramps that would service the HOV users. It is anticipated that the ROW need would be greater with the HOV lanes than general purpose lanes, therefore the impacts would be greater.

3.5 I-75 Improvements

3.5.1 Lane Additions

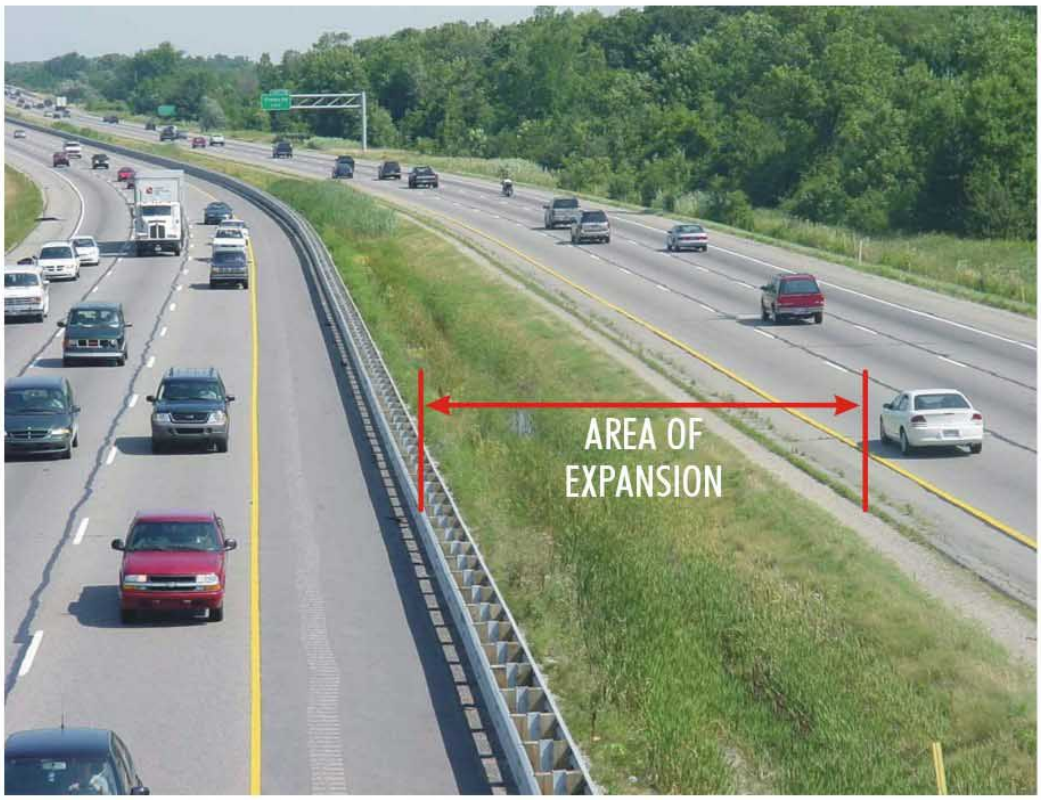
This alternative consists of adding a general purpose lane in each direction to create four through lanes, where four lanes do not already exist. The lane addition supplements the planned major reconstruction of I-75 and includes modifying several interchanges in the corridor to improve traffic flow, remove backups on ramps, and improve safety. The lane additions will almost entirely occur within existing MDOT right-of-way.

The roadway section in the southern part of the corridor is "cut" below grade with crossroads being at grade (Figure 3-1). "Slip" ramps serve traffic entering and exiting the freeway from adjacent service drives. Addition of a fourth through lane in these depressed/below-grade sections will occur by cutting into the existing side slopes. In some cases the "cut" could extend under service drives. Engineering analysis will determine whether the service drives can be cantilevered over the freeway lanes to minimize right-of-way acquisition. This construction technique has been used successfully on the Lodge Freeway in Detroit.

A number of stormwater pump stations occupy the embankment areas needed for use by the new lanes. These will have to be modified or moved.

The roadway is at-grade or elevated in the northern part of the corridor, beginning just south of 12 Mile Road. The lane additions in this section will be constructed in the existing median north as far as Square Lake Road (Figure 3-1). Because there are left exits both northbound and southbound at Square Lake Road, adding a lane through the interchange will present a challenging situation. In

I-75 in Depressed Section



I-75 in At-Grade Freeway Section

Figure 3-1
Typical Sections of I-75

SOURCE: The Corradino Group

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addition, there is no median available for use north of Square Lake Road. This means through the Square Lake interchange, the lane addition will have to transition from inside to outside (northbound) (outside to inside southbound). North of Square Lake Road to beyond M-59 already has four through lanes. No reconstruction or widening is planned for this section of road. However, the transition from the Square Lake Road interchange to the four-lane section will have to be further analyzed. Northbound I-75 was widened through the Square Lake area in 2001 as a separate project to provide more immediate congestion relief in that area. The proposed project would add yet another lane, northbound, through the interchange.

The bridges in the south part of the corridor would be reconstructed because they pass over a roadway pavement that is being widened. North of Gardenia Avenue, I-75 passes over crossroads, therefore the bridges can be left intact, but widened. There would be a significant cost savings to preserving these bridges, wherever possible.

Five pedestrian overpasses exist in the depressed section. These would have to be replaced if I-75 is widened (see discussion in Section 4.2.3).

3.5.2 Interchange Reconstruction

To improve the performance of I-75, changes are proposed at several interchanges. Improvements at the north project limit, the M-59 interchange are in the design stage and are not part of the proposed federal action covered in this EIS. Design is near completion for construction/reconstruction of a complex interchange at Long Lake and Crooks Roads. That project is likewise independent, with separate environmental clearance. The design of both projects will be integrated with that of this I-75 EIS.

The proposed improvement includes modifications to the following interchanges:

- I-696
- 12 Mile Road
- 14 Mile Road

The general characteristics of each interchange are discussed below.

3.5.3 I-696 Interchange

The I-696 interchange with I-75 will be left largely intact. The eastbound I-696 to northbound I-75 ramp which is now a single lane, will flare to two lanes midway through the interchange. The widening would occur once the ramp is clear of constraining bridge piers that support upper levels of this complex interchange. The widening is designed to reduce backups that regularly occur as vehicles merge with northbound I-75 traffic. The ramp widening requires an additional taper north of the interchange to allow the second lane to merge and then, the lane to drop. The additional ramp lane will cause the end of the merge area to be moved north approximately 1,300 feet from its present position. Alternatively, the right-most lane in the new northbound I-75 configuration could become an auxiliary lane,[9] which will end as the off-ramp to 11 Mile Road. The lane addition on the

[9]An auxiliary lane is one that begins as an on ramp, but never fully merges with the mainline. Instead it continues as the rightmost lane of the freeway to the next exit, where is becomes an "exit only" lane. So it functions as a travel lane between two interchanges. The advantage is that it adds some mainline capacity and lengthens the decision-making distance and time for merges and diverges.

eastbound to northbound ramp, together with the lane addition on I-75, will necessitate the acquisition of right-of-way, even if the northbound service drive can be cantilevered over I-75.

3.5.4 12 Mile and 14 Mile Road Interchanges

It is proposed that the 12 Mile Road and 14 Mile Road interchanges with I-75 be reconstructed as single-point urban interchanges (SPUI). This design brings all ramp ends together at a single point and provides for a three-phase signal operation at the intersection. The three phases control: 1) left turns from the ramp ends; 2) left turns to the entrance ramps; and, 3) the through movement of the cross road. The SPUI also provides protection to pedestrians/bicyclists as all movement across traffic lanes is controlled by signals. The SPUIs proposed for 12 Mile Road and 14 Mile Road are so compact that approximately 34 acres of land now within the interchanges could be made available for other uses.

4. Preliminary Issues Analysis

The following list identifies the environmental and social impact categories that will be studied in the environmental impact statement process. Changes may occur as additional data are collected. All of the potential impacts listed below will be thoroughly studied and the results of these studies will be documented in the Draft and Final EISs.

fssues t ithin the Corridor:

- Relocations
- Noise
- Air
- Wetlands
- Drainage
- Indirect (Secondary) and Cumulative Impacts
- Traffic Management
- Safety
- Economic Effects on Local Communities / Tax Base Loss
- Community Cohesion / Special Groups / Environmental Justice
- Surface Water Quality Impacts
- Cultural Resources
- Threatened/Endangered Species
- Floodplains
- Hazardous Materials
- Utility Systems
- Section 4(f)/6(f) Lands

4.1 Relocations

The extent of relocations will be dependent upon the extent to which the cantilever design can be successfully employed. It is hoped that such design will avoid relocation impacts from the widening of I-75 itself, as the new lanes would be constructed within existing MDOT right-of-way. However, if the service drive cannot be cantilevered over I-75 (or narrowed), then the following relocations could occur (Figure 4-1):

- West side I-75 between 9 Mile Road and Woodward Heights – 24-unit apartment complex and a tavern.
- East side I-75 between 9 Mile Road and Woodward Heights – two single-family dwellings.
- East side I-75 north of Woodward Heights - three single-family dwellings and a church.

Figure 4-1
Proposed I-75 Widening
9 Mile to Browning

Widening and lengthening the eastbound to northbound ramp at the I-696 interchange may also encounter relocations. If the service drive can be cantilevered over I-75, relocations may be avoided. Narrowing the service drive is an option that will also be explored to avoid relocations. Additional engineering analysis is required to reach a conclusion. Nevertheless, the properties potentially affected are east of I-75 Between Lincoln Road and Greig Street (Figure 4-2). Seven contiguous lots south of Sixth Street currently support single-family homes. Our Savior Lutheran Church occupies the property between Sixth Street and Andover. Church parking is also located on this block. A single-family dwelling built in 2000 between Andover and Greig Street may also be affected.

If relocation is encountered, relocation assistance will be provided to all residential and business property owners and business operators in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. Resources will be made available without discrimination to all owners who are relocated.

4.2 Noise

Measurements made in the south project area indicate existing noise levels in some areas adjacent to I-75 exceed the Federal Highway Administration's criteria for residential and other sensitive land uses. A complete noise analysis will be performed to determine the extent of this condition. Those areas where noise criteria are exceeded and where noise mitigation is determined to be reasonable and feasible will be identified for noise abatement. Public and agency comments on anticipated noise impacts will be considered. Where noise walls are recommended, input will be sought from emergency services regarding accommodation of access and fire hydrants.

4.3 Air Quality

Air quality conformity analysis will be determined and will follow appropriate procedures as the 8-hour ozone standard is put into effect for the region. MOBILE6 will be used to generate air quality emission factors and CAL3QHC will be used to examine critical intersections. The U.S. EPA will be consulted regarding presentation of information on air toxics.

4.4 Wetlands

Wetlands are protected by state and federal law because of their important ecological role. If impacts to wetlands are unavoidable, there must be a finding that there is no practicable alternative to the impact. And, the impacts must be minimized, then mitigated. Mitigation usually involves replacing wetlands at a ratio of greater than one. Wetlands will be delineated in cooperation with resource agencies.

A windshield survey conducted as part of this project indicates wetlands will be affected because there are areas where no ditch was constructed when the original road was built and drainage was adjacent to low-lying areas. Some of these areas are considered wetlands. The project crosses the Clinton River once and the River Rouge twice, so drainage is to both watersheds. A wetland mitigation plan that takes this into account will be developed. It will include a mitigation program.

Figure 4-2
Proposed I-75 Widening
Brockton to Greg

4.5 Drainage

The addition of another lane in each direction on I-75 will impact the existing drainage within the median and roadway edges by altering the drainage patterns, the infiltration and storage areas, and discharge volumes. A drainage study will specifically address how the increased storm runoff from the expanded roadway pavement will be managed.

4.6 Indirect (Secondary) and Cumulative Impacts

Historic aerial photography will be used in conjunction with changes in population, employment and housing to profile the changes brought by the initial construction of I-75 in the 1960s and the rapid development that has occurred in Oakland County in recent decades. Official planning documents will be examined next. The travel model used to forecast project traffic will be used to determine the changes in traffic brought about with the proposed improvements. Taken together, these data sources will provide a mapping base to examine the following kinds of impacts for build and no-build conditions:

- Mobility
  - ✓ Travel changes induced by widening I-75
  - ✓ Number of "high crash" locations affected
  - ✓ Right-of-way and construction costs possibly incurred
  - ✓ Pedestrian and bicyclists on affected links
- Land Use
  - ✓ Conversion of land uses
- Air Quality
  - ✓ Localized carbon monoxide air emissions
  - ✓ Regional air quality effects
- Cultural Resources
  - ✓ Change in historic/archaeological resources
  - ✓ Change in parklands
- Community
  - ✓ Number of residential units and business properties potentially affected
  - ✓ Residential properties with possible change in noise experience
  - ✓ Effects on community cohesion
  - ✓ Potential environmental justice issues
  - ✓ Change in economic vitality
  - ✓ Change in aesthetics
- Noise
  - ✓ Residential properties with possible change in noise experience
- Water
  - ✓ Water quantity and quality as affected by changes in drainage
  - ✓ Quantity and quality of groundwater
  - ✓ Quantity and quality of wetlands affected
- Plants and Animals
  - ✓ Disturbance to listed species including net loss of habitat and wildlife movement

4.7 Traffic Management

Traffic maintenance during construction is anticipated to be an important issue with the build alternative. A traffic management plan will be part of the final design and will focus on minimizing traffic disruption in the construction area to the extent possible. It is anticipated that the construction plan will use partial-width construction, existing service drives and detours to minimize disruption of traffic. There are no alternate parallel roadways to I-75 in the north section of the project that could be used efficiently during construction. Construction of the single-point interchanges will offer the greatest challenge as the bridges over 12 and 14 Mile Roads will have to be replaced, together with the ramps. Development of the traffic management plan will also consider transit and the use of staggered work hours, shortened work weeks, and other techniques.

The construction plan will include provisions to shorten the duration of construction through liquidated damages for delays, 24-hour work scheduling, and early completion incentives.

4.8 Safety

A traffic safety study will indicate the effects of the project on the number of fatal and non-fatal crashes.

4.9 Economic Effects on Local Communities

The interview with Madison Heights indicated that the local share of the construction cost for I-75 will be an issue for that community.

4.10 Community Cohesion/Special Groups/Environmental Justice

The effects of the reconstructed road on local communities will be analyzed. Interviews have already been conducted with all contiguous communities and the concerns of these communities will be addressed in the Draft EIS.

The proposed improvements to the bridges over I-75 will include pedestrian and bicycle travel ways, which is an improvement over existing conditions. The existing pedestrian overpasses will likely be rebuilt in the same locations, but a dialogue will be established with local communities, community groups and school administrators to determine if the crossing locations are optimal.

The proposed project is not expected to negatively affect any minority or low-income populations although additional analyses will need to be conducted.

4.11 Surface Water Impacts

There are no lakes, ponds, or other surface water bodies within the existing or proposed right-of-way of I-75. The drainage study will address storm water control, treatment, and discharge features that will manage storm water quantity and quality. Existing crossings of the Clinton and Rouge Rivers are via culverts or bridges that are continuous (no breaks in the median) and will not likely be altered or lengthened by the project. Therefore, disturbance of these crossings will be minimal.

Short-term water quality impacts may occur during construction of the project. A soil erosion and sedimentation control plan will be developed to minimize water quality impacts during construction. The plan will be prepared in accordance with applicable regulations.

4.12 Cultural Resources

The National Register of Historic Places is a list of resources that have significance based on a variety of criteria related to history and its interpretation. Resources may include objects, property, and structures. Both Section 106 of the National Historic Preservation Act and Section 4(f) of the Department of Transportation Act of 1966 protect such resources. Widening of I-75 is not anticipated to impact cultural resources because the work will be confined almost wholly to existing right-of-way. There are no known sites on or in the vicinity of the properties that might be acquired for the project.

An Area of Potential Effect (APE) has been submitted to the State Historic Preservation Office. A field inventory of potentially affected sites has been conducted. The inventory will identify sites that may be eligible for the National Register, but have not yet been listed. Sites of local historic significance adjacent to I-75 will also be plotted. The analysis of possible impacts to historic resources will take into account existing and proposed noise mitigation (walls) that may have an effect on the visual setting of any potentially eligible properties.

4.13 Threatened/Endangered Species

Threatened and endangered species are officially protected in Michigan by both federal and state Endangered Species Acts: Public Law 93-205 and Act 203 of the Public Acts of 1974, respectively. An endangered species (E) under the acts is defined as in danger of extinction throughout all or a significant portion of its range. A threatened species (T) under the acts is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Special concern (SC) species are not afforded legal protection under the acts but are of concern because of declining or relict populations within Michigan, or are species for which more information is needed.

The Michigan Natural Features Inventory (MNFI) is the most complete database available for all of Michigan's T/E/SC species. The proposed improvements are not expected to impact any threatened or endangered species because the project area is in already developed urban/suburban environment. The MNFI database will be searched and field studies will be conducted to confirm that there is no state or federally-listed T/E/SC species within the proposed project area.

4.14 Flood Hazard

No changes in floodplain boundaries, which are outside the project corridor, are expected. The results of the drainage study will define any floodplain impacts.

4.15 Hazardous Materials

Contamination is not anticipated to be a significant environmental issue for the proposed lane additions. A Project Area Contamination Survey (PCS) will be performed for the properties to be acquired. The PCS involves reviewing federal, state and local environmental sites lists and databases,

historical land use records, and inspections and interviews. The historical review is necessary to identify previous land uses that might be associated with hazardous materials or environmental pollution. A field review of potential relocations properties will also be conducted.

4.16 Utility Systems

Adjustments to utility systems will be a challenge due to the urban nature of the corridor, especially in the depressed section. This is especially true of the pump stations at the outside edges of the existing roadway. These stations pump stormwater from the depressed I-75 roadbed up and into the storm drainage system. However, these are largely engineering issues, not issues of an environmental nature. A review of mapped utilities and inquiries with local utility companies will be conducted to locate and accommodate major utilities, so that unplanned disruptions of service do not occur.

4.17 Section 4(f)/6(f) Lands

There is no known Section 4(f) or 6(f) land contiguous to I-75. Nearby resources and any effects on them will be identified, if such lands are identified.